

WHAT IS CLAIMED IS:

1. An image processing method for an image processing apparatus, comprising the steps of:

 inputting image data;

 performing block selection of objects in the input image data;

 discriminating whether each block of the input image data is character or non-character image data;

 detecting a feature of each block of character data without utilizing edge portions of the character data;

 performing an image process on each block of the character data based on the detected feature of the character data, and performing an image process on the non-character image data; and

 outputting the processed image data.

2. A method according to Claim 1, wherein the detected feature of the character data is a foreground color of the character data.

3. A method according to Claim 1, wherein the detected feature of the character data is a background color of the character data.

4. A method according to Claim 1, wherein the image process performed on the non-character image data is a smoothing process, and wherein the image process performed on each block of the character data is an edge enhancement process.

5. A method according to Claim 1, wherein a block selection algorithm performs the block

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selection and detects edge portions of the character data and utilizes portions of the character data internal to the edge portions in detecting the feature of the character data.

6. A method according to Claim 1 further comprising performing color conversion processing of the image data before the outputting step.

7. A method according to Claim 2, wherein the foreground color detection process comprises:

converting input color component values of the character data to color space values;
determining an average color space value from the converted color space values; and
comparing the average color space value to a threshold value.

8. A method according to Claim 7, further comprising determining whether or not the character data is black based on a result of the comparing step.

9. A method according to Claim 1, wherein the input step comprises selecting a processing mode of the image data based on a type of image being input, wherein the discriminating step discriminates each block of the input image data based on the selected processing mode.

10. A method according to Claim 9, wherein the processing mode includes one of a text mode, a photo/illustration mode, a magazine mode and a mixed document mode.

11. A method according to Claim 1, wherein the character data comprises each of a plurality of characters of a word and the detecting step detects a feature of each character in the word and compares the detected feature of each character with one another.

12. An image processing apparatus, comprising:

an input device for inputting image data; and

an image processing device that (a) performs block selection of objects in the input image data, (b) discriminates whether each block of the input image data is character or non-character image data, (c) detects a feature of each block of the character data without utilizing edge portions of the character data, and (d) performs an image process on each block of the character data based on the detected feature of the character data, and performs an image process on the non-character image data; and

an output device that outputs the processed image data.

13. An apparatus according to Claim 12, wherein the detected feature of the character data is a foreground color of the character data.

14. An apparatus according to Claim 12, wherein the detected feature of the character data is a background color of the character data.

15. An apparatus according to Claim 12, wherein the image process performed on the non-character image data is a smoothing process, and wherein the image process performed on each block of the character data is an edge enhancement process.

16. An apparatus according to Claim 12, wherein a block selection algorithm performs the block selection and detects edge portions of the character data and utilizes portions of the character data internal to the edge portions in detecting the feature of the character data.

17. An apparatus according to Claim 12, wherein the image processing device further performs color conversion processing of the image data before the processed image data is output.

18. An apparatus according to Claim 13, wherein the foreground color detection process comprises:

converting input color component values of the character data to color space values;

determining an average color space value from the converted color space values; and

comparing the average color space value to a threshold value.

19. An apparatus according to Claim 18, further comprising determining whether or not the character data is black based on a result of the comparing step.

20. An apparatus according to Claim 12, wherein the input device comprises a mode selection

device for selecting a processing mode of the image data based on a type of image being input, wherein the image processing device discriminates each block of the input image data based on the selected processing mode.

21. An apparatus according to Claim 20, wherein the processing mode includes one of a text mode, a photo/illustration mode, a magazine mode and a mixed document mode.

22. An apparatus according to Claim 12, wherein the character data comprises each of a plurality of characters of a word and the detecting step detects a feature of each character in the word and compares the detected feature of each character with one another.

23. Computer-executable process steps for performing an image process, comprising the steps of:

inputting image data;
style="padding-left: 40px;"/>performing block selection of objects in the input image data;
style="padding-left: 40px;"/>discriminating whether each block of the input image data is character or non-character image data;
style="padding-left: 40px;"/>detecting a feature of each block of the character data without utilizing edge portions of the character data;
style="padding-left: 40px;"/>performing an image process on each block of the character data based on the detected feature of the character data, and performing an image process on the non-character image data; and
style="padding-left: 40px;"/>outputting the processed image data.

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24. Computer-executable process steps according to Claim 23, wherein the detected feature of the character data is a foreground color of the character data.

25. Computer-executable process steps according to Claim 23, wherein the detected feature of the character data is a background color of the character data.

26. Computer-executable process steps according to Claim 23, wherein the image process performed on the non-character image data is a smoothing process, and wherein the image process performed on each block of the character data is an edge enhancement process.

27. Computer-executable process steps according to Claim 23, wherein a block selection algorithm performs the block selection and detects edge portions of the character data and utilizes portions of the character data internal to the edge portions in detecting the feature of the character data.

28. Computer-executable process steps according to Claim 23 further comprising performing color conversion processing of the image.

29. Computer-executable process steps according to Claim 24, wherein the foreground color detection process comprises:

converting input color component values of the character data to color space values;

determining an average color space value from the converted color space values; and comparing the average color space value to a threshold value.

30. Computer-executable process steps according to Claim 29, further comprising determining whether or not the character data is black based on a result of the comparing step.

31. Computer-executable process steps according to Claim 23, wherein the input step comprises selecting a processing mode of the image data based on a type of image being input, wherein the discriminating step discriminates each block of the input image data based on the selected processing mode.

32. Computer-executable process steps according to Claim 31, wherein the processing mode includes one of a text mode, a photo/illustration mode, a magazine mode and a mixed document mode.

33. Computer-executable process steps according to Claim 23, wherein the character data comprises each of a plurality of characters of a word and the detecting step detects a feature of each character in the word and compares the detected feature of each character with one another.

34. A computer-readable medium which stores computer-executable process steps for performing an image process, the executable process steps comprising:

 inputting image data;

performing block selection of objects in the input image data;

discriminating whether each block of the input image data is character or non-character image data;

detecting a feature of each block of the character data without utilizing edge portions of the character data;

performing an image process on each block of the character data based on the detected feature of the character data, and performing an image process on the non-character image data so as to output processed image data; and

outputting the processed image data.

35. A computer-readable medium according to Claim 34, wherein the detected feature of the character data is a foreground color of the character data.

36. A computer-readable medium according to Claim 34, wherein the detected feature of the character data is a background color of the character data.

37. A computer-readable medium according to Claim 34, wherein the image process performed on the non-character image data is a smoothing process, and wherein the image process performed on the character data is an edge enhancement process.

38. A computer-readable medium according to Claim 34, wherein a block selection algorithm performs the block selection and detects edge portions of the character data and utilizes portions

of the character data internal to the edge portions in detecting the feature of the character data.

39. A computer-readable medium according to Claim 34 further comprising performing color conversion processing of the image.

40. A computer-readable medium according to Claim 35, wherein the foreground color detection process comprises:

converting input color component values of the character data to color space values;

determining an average color space value from the converted color space values; and

comparing the average color space value to a threshold value.

41. A computer-readable medium according to Claim 40, further comprising determining whether or not the character data is black based on a result of the comparing step.

42. A computer-readable medium according to Claim 34, wherein the input step comprises selecting a processing mode of the image data based on a type of image being input, wherein the discriminating step discriminates each block of the input image data based on the selected processing mode.

43. A computer-readable medium according to Claim 42, wherein the processing mode includes one of a text mode, a photo/illustration mode, a magazine mode and a mixed document mode.

44. A computer-readable medium according to Claim 34, wherein the character data comprises each of a plurality of characters of a word and the detecting step detects a feature of each character in the word and compares the detected feature of each character with one another.